6. At the level of the dorsal portion of the cord decussated sensory fibres are much more scarce than the uncrossed ones.

7. It is very probable that for one form of sensation (tactile) at least, no decussation takes place in the spinal cord.

ONUF.

PATHOLOGICAL.

Contribution to the Knowledge of the Secondary Changes in the White Substance of the Cord due to Disease of the Cauda Equina. By Prof. L. O. Darkschewitsch (*Neurolog. Centralblatt*, 1896. No. 1) The report concerns a case of carcinoma which had involved the abdominal surface of the second, third and fourth lumbar vertebræ. The neoplasm had not entered into the vertebral canal, but corresponding to the lower fourth of the cauda equina the dura presented the condition of a pachymeningitis externa hypertrophica which had led to degeneration of the roots within said area.

Examination of the cord showed the absolute absence of any other changes but those due to the degeneration of root fibres.

All posterior root bundles up to the level of the first lumbar segment were degenerated; from the twelfth dorsal segment upwards they were all normal. Accordingly the transverse sections showed degeneration of both posterior columns in their whole extent from below up to the first lumbar segment. Further upwards normal fibres began to appear at the medial border of the posterior horn, that is, in the region corresponding to the zone radiculaire. This zone of normal fibres become larger, extending more and more mesial, the higher one came upwards in the cord, so that at the level of the third cervical segment the area of degeneration was reduced to a wedge, the base of which corresponded to the dorsal border of Goll's column, while its point was at about one-quarter of the depth of the posterior longitudinal septum behind (dorsad of) the posterior commissure. In other words, the degenerated area which represent directs fibres of the posterior root bundles of the cauda equina, corresponded in this region exactly to that part which on specimens of embryons is described as Goll's column.

At the height of the nuclei of the posterior columns, the degeneration in the white substance extended also over the whole column of Goll and reached also within the nucleus of Goll's column of each side. Burdach's columns and the nuclei of Burdach's columns were normal.

In the upper region of the lumbar and the lower regions of the dorsal portion of the cord, degenerating root bundles could be followed to the lateral periphery of Clarke's columns and partly within these formations.

The posterior commissure showed nowhere any degenerating fibres, which, D. concludes speaks against the statement, that part of the posterior root fibres pass directly into the opposite half of the cord. The anterior roots showed also degenerative changes in the sacral and lumbar portions of the cord.

The findings of this case confirm for man the anatomical relations of the posterior roots which Singer and Münzer had found to exist in dogs on the ground of experimental investigation. The direct connection of posterior root bundles of the lowest portion of the cord with the nucleus of Goll's column is present also in man. Goll's column is consequently formed by long fibres which are the direct continuation of root fibres of the posterior roots contained within the cauda equina.

The fact that a great part of the fibres belonging in the cauda equina end within Clarke's columns, makes it probable that the nuclei of Goll's columns are homologa of Clarke's columns.

ONUF.

Left Facial, Glossal, Pharyngeal and Laryngeal (?) Paralysis due to a Softening Focus of the Right Centrum Semiovale.

By D. A. Wallenberg (*Neurol. Centralblatt*, 1896, No. 5). In a man of 47 years, who for several years has been suffering from insufficiency of the aortic valves without distinct signs of aneurysm, and without paralysis of the recurrent branch of the pneumogastric nerve, the following symptoms developed about a year ago or still earlier: Myosis on both eyes with loss of response, paralysis of the right sixth nerve. Then gradually increasing dementia, headaches, attacks of dyspnœa, vomiting, a pulmonary affection of a few days' duration (embolism ?)

After the condition had remained stationary during several months, the following symptoms developed within three days: total paralysis of deglutition, paresis of the left facial nerve in all its branches, of the left vocal cord and in slight degree also of the muscles elevating the left shoulder.

Aside from this there was œdema of the left conjunctiva, of the right upper lid, formation of two tumors on the left half of the skull. No reaction of degeneration in the paralyzed muscles, but lessened excitability to both kinds of currents. Trunk and extremities show no disturbances of sensation and motion. The tumors disappeared after mercury treatment, the palsies receded considerably. About three weeks after the development of the complex of symptoms described, the patient was taken with vomiting, dyspnœa and collapse, resulting in death.

W. had made the diagnosis of a bulbar affection, but the autopsy proved that the symptoms developing three weeks before death were due to a focus in the right centrum semiovale. The following tracts of fibres had suffered complete interruption of continuity by the focus: Nearly all projection fibres of the third frontal convolution, of the ventral half of the second